

SHORT COMMUNICATION

**First record of a fin whale (*Balaenoptera physalus*)
stranding on the northern Aegean Sea coast of Turkey**

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Abstract

A stranding of a fin whale (*Balaenoptera physalus*) was reported for the first time from the Turkish coast of the northern Aegean Sea. A part of skeleton; posterior part of skull, a part of left mandible, ribs with mummified tissues of an individual were found in Saros Bay near Danişment village. The stranded whale was likely to be a juvenile as the estimated body size (13.5-14 m) was lower than the mature body size of those in the northern hemisphere. Although many parts of the specimen were missing and the exact date of the stranding was unknown, the information about such strandings of rare and threatened species like the fin whale is valuable in terms of understanding the regional distribution of the species.

Key words: Fin whale, *Balaenoptera physalus*, stranding, northern Aegean Sea, Saros Bay

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Fin whale, *Balaenoptera physalus* (Linnaeus, 1758), is a cosmopolitan species, that inhabits primarily all oceanic waters of both hemispheres and rarely the tropical waters, while occasionally appearing at the shores only if the water is deep enough (Jefferson *et al.* 2011). They are regularly encountered throughout the western and central Mediterranean Sea, especially in the Corsican, Ligurian and Tyrrhenian Seas, but rare in the Adriatic Sea and in the eastern part of Mediterranean, such as Aegean Seas and in the Levantine Basin (Panigada and Notarbartolo di Sciara 2012). In the Mediterranean coast of Turkey, there have

been four strandings recorded; 1977 in Antalya; 2000, 2002 in Yumurtalık (Öztürk *et al.* 2016); 2017 in İskenderun (TUDAV 2017) and one live sighting in 2014 in İskenderun (A.M. Tonay, unpublished data). In the Aegean coast of Turkey, there had been only one stranding record in 1998 at the beach of Kuşadası-Dilek Peninsula (Dede 1998; Şerifoğlu *et al.* 1998; Tonay *et al.* 2015). In the Aegean Sea coast of Greece, there have been five strandings reported; two of them in the northern Aegean Sea in 1998 in Nea Iraklitsa and 2010 in Keramoti and the live sightings in the Saronic Gulf in 1998 and 2008 (Frantzis *et al.* 2003; Frantzis 2009; Archipelago 2011; Milani *et al.* 2017) (Figure 1). The present paper reports the first record of a fin whale stranding in the northern Aegean Sea coast of Turkey.

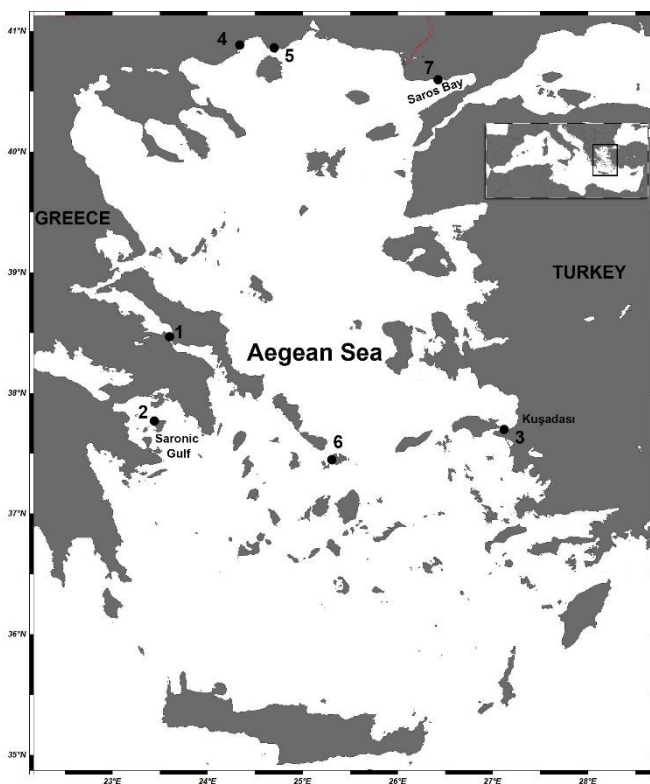


Figure 1. Location of the fin whale strandings in the Aegean Sea. 1. (Frantzis *et al.* 2003; Notarbartolo di Sciara *et al.* 2003), 2. (Frantzis 2009), 3. (Dede 1998; Şerifoğlu *et al.* 1998; Tonay *et al.* 2015), 4., 5. (Milani *et al.* 2017), 6. (Archipelago 2011), 7. (this study)

Posterior part of the skull, a part of left mandible, ribs with mummified tissues were found on a deserted beach near Danişment village in Saros Bay, the northern Aegean Sea of Turkey, on 10 July 2019, by Mustafa Altunhan, a village resident

(Figure 1). The left mandible and the skull part were transported to the village of Yayla and the rest of the skeleton was left at the beach. Once the story of the whale skeleton appeared in local news and social media, the authors contacted Mr. Altunhan to get further information. The parts of the specimen, which were transported to the village of Yayla (Altunhan Beach), were later photographed and measured by the authors after a month (Figure 2). Two species of *Balaenoptera* are living in the Mediterranean Sea; the fin whale as native and the minke whale *Balaenoptera acutorostrata* as visitor (Notarbartolo di Sciara and Birkun 2010). Based on the skull and mandibular comparison (Jefferson *et al.* 2011; Peredo *et al.* 2017), the individual was identified as a fin whale.



Figure 2. Remains of a stranded fin whale in Saros Bay, Turkey, with measurements of A) left mandible and dorsal side of the skull, B) ventral side of the skull

The skull was not complete as only the posterior part remained. The left mandible was cut in the anterior section with some sharp device. In other words, the maxillary parts of the skull, the right mandible in complete and the anterior half of the left mandible were all missing. Thus it was impossible to measure the condylobasal length which is an important parameter to estimate the total length. The only measurements were the greatest width of the skull (GWS), sometimes referred to as zygomatic width, (142 cm), length of the right zygomatic (60 cm) and the length of cut mandible (183 cm).

Relationship between body length, condylobasal length (CBL) and greatest width of skull (GWS) were studied by Nakamura *et al.* (2012), who found that CBL and GWS show positive allometry increase in relation to the body length. This allometry allowed us to estimate the total length from the GWS measurement.

$$Y = bX^a$$

Y can be substituted as GWS or CBL, X is total length, b and a are constant values for male and female specimens of fin whale (Nakamura *et al.* 2012). Total length estimates based on GWS are as follows:

$$\text{If it was male, } 142 = 6.5 X^{1.17} \qquad X = 13.95\text{m}$$

$$\text{If it was female, } 142 = 8.1 X^{1.10} \qquad X = 13.51\text{m}$$

Notarbartolo di Sciara *et al.* (2003) reported that the mean body length of the stranded Mediterranean fin whale were 13.8 m, maximum was 25.6 m based on 103 stranded specimens between 1798 and 1997. However, this historical measurement for which the measuring method was not described have been evaluated not to be reliable (Notarbartolo di Sciara *et al.* 2003). The average length at sexual maturation is about 17.5 m for males, 18.5 m for females and average length of adults is 21.5-22 m in the northern hemisphere (Aguilar 2009). The size at birth is 6-7 m, weaning occurs when the calf is about 6-7 months old and measures 11 to 13m long (Aguilar 2009). Since there is no study on average length of sexual maturation of the Mediterranean subpopulation, this individual was compared with the ones in the oceans of northern hemisphere.

Based on the pieces of information on body length given above, this individual was assumed to be a sexually immature animal, thus a juvenile. The total length of measured fin whales that stranded along the coast of Greece range between 10-14.5 m (Frantzis 2009) and 10.25-14.5 m in Turkey (Öztürk *et al.* 2001; Cicek *et al.* 2007; Tonay *et al.* 2015; TUDAV 2017). In other words, the records demonstrate mostly juvenile stranding cases in the Ionian, Aegean and northeastern Mediterranean Seas which raises the question of possible mother-calf separation and its consequence. Higher mortality rate for young and immature fin whales are known throughout the Mediterranean Basin and Adriatic

Sea (Arrigoni *et al.* 2011; Pierantonio and Bearzi 2012) and actually in all mammals (Caughley 1966).

Concerning the Mediterranean fin whales, main threats are ship strikes and noise pollution caused by ships. Ship strikes cause mortality particularly in heavy-vessel traffic areas and the traffic may cause additional acoustic stress (Panigada and Notarbartolo di Sciarra 2012). In addition, seismic air guns can deter fin whales from feeding or breeding grounds (Castellote and Clark 2009), with potential detrimental effects on the population.

Mediterranean subpopulation of the fin whale is currently assessed as Vulnerable (VU) in IUCN Red List with the population trend known to be decreasing (Panigada and Notarbartolo di Sciarra 2012). A sharp decrease in abundance has been observed in the Pelagos Sanctuary (western Mediterranean Sea) and the population size has been estimated 3,500-5,000 mature individuals in the basin. On the basis of genetic evidence, a separated resident population of Mediterranean fin whale has been defined which gather during summer in highly productive areas such as Corso-Ligurian Basin (Panigada and Notarbartolo di Sciarra 2012). A possible winter ground is thought to be off the southern Spanish coast and the North African coast (Castellote *et al.* 2008) and for late winter the Sicily Channel (Canese *et al.* 2006). According to Frantzis (2009), depending on prey availability, fin whales may visit regularly or occasionally, during winter or spring, particular areas in the Aegean Sea, such as Saronic Gulf in Greece.

Although many parts of the current specimen were missing and the exact date of stranding was unknown, the information about such strandings of rare and threatened species like the fin whale is valuable in terms of understanding the regional distribution of the species. Therefore, the existence of active cetacean stranding network plays a critical role in order to collect data from fresh carcasses which will eventually allow us to understand the biology and ecology of the species. In addition to the stranding network as the main source of information, crowdsourcing activities as part of citizen science, as well as regular monitoring of social and local media as in this case, can be instrumental in acquiring valuable stranding information that can contribute to our basic knowledge on cetaceans in the Turkish waters.

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Türkiye'nin kuzey Ege kıyısında karaya vuran ilk uzun balina (*Balaenoptera physalus*) kaydı

Öz

Türkiye'nin kuzey Ege kıyısında ilk kez bir uzun balina (*Balaenoptera physalus*) karaya vurması rapor edilmiştir. Saroz Körfezi'nde Danişment Köyü'nün yakınlarında balinanın kafatasının arka kısmı, sol alt çenesinin bir parçası, mumyalanmış dokularla kaburgaları gibi iskeletinin sadece bir kısmı bulunmuştur. Balinanın yapılan boy tahminine göre kuzey yarım kürenin ergin bireylerinin boylarından daha kısa ve genç bir birey (13.5-14m arası) olduğu değerlendirilmiştir. Her ne kadar örneğin büyük bir kısmı kayıp ve karaya vurma tarihi belirsiz olsa da, uzun balina gibi nadir ve koruma altındaki türlerin bölgesel dağılımlarının ortaya konması için bu gibi kayıtlar çok önemlidir.

Anahtar kelimeler: Uzun balina, *Balaenoptera physalus*, karaya vurma, kuzey Ege Denizi, Saroz Körfezi

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